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ABSTRACT

January 31 to May 28, 1971, 44 5th grade classes and teachers from the Washington, D.C. Public Schools visited the Environmental Outdoor Laboratory School, Catoctin Mountain National Park, Thurmont, Maryland. The school provided: (1) specialized training in reading and related communication skills; (2) opportunities for growth in socialization through resident experiences; (3) recreational experiences available only in an outdoor camp setting; and (4) utilization of mathematics, science, and social studies in on-site experiences to extend and clarify classroom experiences. A survey was conducted to assess the project's effectiveness and determine the importance of such a project on urban students. Interviews and questionnaires were used to gather data from the staff, visiting teachers, parents, and students. Pre-post attitude and knowledge questionnaires were administered to students during the program's first, fifth, and eighth weeks. Some findings were: (1) positive results existed on both students' attitudes and knowledge inventories; (2) there was an overall gain in knowledge in mathematics, science, and vocabulary; (3) camp staff members rated the total program "excellent" or "good"; and (4) classroom teachers felt the program contributed to the students' social growth as they experienced the responsibilities and social interchange of group living. The report's appendixes give examples of the survey instruments used, a schedule of a typical day, and lists of participating schools, personnel, and resident and visiting teachers. (NQ)

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Environmental Outdoor Laboratory School

directed by

The Department of Summer Schools, Continuing Education and Urban Service Corps

and

Science Department

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March 22 - June 11, 1971

THE DIVISION of PLANNING RESEARCH EVALUATION

RC 08212

Evaluation Report

Prepared by

The Departments of Research and Evaluation

Fiscal Year 1971

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Environmental Outdoor Laboratory School

The program was funded by the District of Columbia Public Schools and the Department of the Interior through the office of the Superintendent of the Catoctin Mountain National Park, the National Park Service of the District of Columbia and the office of the Director of the National Environmental Education Development Program*

* Mr. Russell Dickenson, General Superintendent, National Capital Parks
National Park Service
Mr. Frank Mentzer, Superintendent at the Catoctin Mountain
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Evaluation Summary

Title: Environmental Outdoor Laboratory School

Project Location: Camp Round Meadow, Catoctin Mountain National Park, Thurmont, Maryland

Date: January 31, 1971 to May 28, 1971

Target Population: 5th Grade D. C. Public School Students and their Teachers

Number Served: 44 Teachers - 1,100 Students

Staff: Coordinated by the Department of Summer Schools, Continuing Education and Urban Service Corps and Science Department

Funding Allotment: $79,977.48 D. C. Public Schools
$30,955.50 Department of Interior

Background and Rationale:

The D. C. Public Schools established a Spring out-of-doors laboratory school for elementary children at Camp Round Meadow, Catoctin Mountain National Park, Thurmont, Maryland. The staff was composed of qualified personnel from the D. C. School System together with trained park rangers and park naturalists from the Interior Department.

The general objectives of the project were as follows:

1. To use the out-of-doors as a laboratory to enrich and enhance the educational experiences of pupils through the use of resources available only in a natural setting.

2. To extend the awareness of urban youth beyond the city environment into the natural environment.

3. To acquaint students with the natural beauty and historical resources of the Catoctin Park area.

4. To help pupils gain insight into man's relationship to his natural and man-made environment.

5. To help pupils acquire deeper understanding of environmental problems so as to be motivated to participate in environmental problem solving.

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The specific objectives of the project were as follows:

1. To provide specialized training in reading and related communication skills.

2. To utilize in on-site experiences the content of mathematics, science, and social studies to extend and clarify classroom experiences.

3. To provide opportunities for growth in socialization through resident experiences.

4. To provide recreational experiences available only in an outdoor camp setting.

The following is a set of behavioral objectives established by the Department of Summer Schools, Continuing Education and Urban Service Corps:

1. To have first hand experiences with streams, plants, animals, land forms, rocks, etc., in their natural setting.

2. To find evidences of the affect of man upon his environment (use, misuse, reclamation).

3. To find evidences of the ways natural forces have affected the environment.

4. To utilize reading and other communication skills, mathematics, science, and social studies to make on-site experiences more meaningful and to motivate interest in developing skills in these areas.

5. To describe the natural and urban environments and to show similarities and differences in them.

6. To work in a systematic way, to gain information from the environment.

7. To demonstrate responsible participation as a member of a community (with the attending responsibilities, rights, and privileges) while sharing experiences of living, working, playing, and learning together.

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The students were selected from grade five only. Approximately 100 pupils visted the camp each week. The students arrived at camp on Sunday afternoon and departed the following Friday afternoon. The students were accompanied by the homeroom teacher whenever possible. Their homeroom teacher ramained at camp with them the whole week.

The camp was well equipped and had winterized facilities. The students had the opportunity to share in a total living and learning experience. The students were exposed to various meaningful activities. These activities included learning about ecology, geology, mathematics and pioneer life. They were also exposed to many Arts and Crafts. Physical education was also a main phase of the program.

The activities for a day were designed to get the most out of each day. The schedule for a typical day can be seen in Appendix G.

Procedure:

Data was gathered through oral interviews as well as questionnaires devised by the research team. The following is a list of instruments used:

1. Staff Questionnaire
2. Staff Evaluation
3. Teacher Evaluation
4. Student Opinion Inventory
5. Student Knowledge Inventory

For a complete breakdown of personnel participating in the survey, see Appendix H.

Results and Discussion:

Pre-post attitude and knowledge questionnaires were administered to pupils attending the camp during the first, fifth, and eighth weeks of the program. Matched data for 234 of those students showed an overall gain in knowledge in the areas of mathematics, science, and vocabulary. This gain was significant at the 1% level of confidence. The data also showed an overall gain in attitude toward the camping experience, but the gain was not statistically significant.

Twenty-five of about 35 classroom teachers who accompanied classes to the campsite responded to a questionnaire sent to them one week following their return from the camp. Eighty-eight percent rated the overall program either "excellent" or "good," while the remaining 12 percent made no response. Eighty percent rated the camp instructional staff either "excellent" or "good." All but one of the responding teachers thought the experience had been extremely beneficial to them

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and to their students. They reported that the students had retained factual information from the camping experience, demonstrated an interest in similar subjects, associated campsite information to their classroom experiences, shown enthusiasm for the camp experience in their writing, expressed a desire to return to the campsite, and increased their curiosity about their environment, either to a "great" extent or to "some" extent. Forty percent of the responding teachers indicated that the camping experience had presented no special problems.

Fifteen camp staff members, including administrators, instructors, and counselors, completed a final evaluation questionnaire. The responding staff members rated the total program "excellent" or "good." Almost all the specific aspects of the program, such as the living facilities, the schedule, the staff expertise, the division of staff responsibilities, and staff cooperation -- were rated "quite adequate" or "good." The only exceptions were the availability of educational equipment and the transportation system, both of which were rated "fair," and the food service, which was rated "outstanding."

Parents interviewed at the Parents Day said they were very happy about the experiences their children were having at the camp. They were impressed with the camp staff and pleased with the camp facilities. Many indicated that they would like to see the program expanded to include children from other than fifth grades, while others indicated they would like to work with such a program.

Conclusions:

The following conclusions have been made based on the results of the evaluation:

1. The program contributed to the social growth of students as they experienced the responsibilities and social interchange of a group living together as a unit.

2. The program offered students a chance to live for a period of time in a different social situation with their peers. Data indicated that students acquired enriched classroom work in the areas of science and nature.

3. The staff worked very well together in implementing the total program.

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Recommendations:

1. It is recommended that the program planners be given more time whenever possible to work out plans for the total program.

2. A pre-camp workshop should be set up for visiting teachers to inform them of the objectives of the program and their active role in the program.

3. The community should be aware of such a program and input from the community to help improve the program should be considered.

4. More educational equipment and supplies should be made available for the staff at camp. A careful study of equipment and supplies should be made to determine the amount needed to insure a successful program.

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ENVIRONMENTAL OUTDOOR LABORATORY SCHOOL
EVALUATION REPORT

INTRODUCTION

Research into outdoor educational programs for elementary students shows that the outdoor school experience for boys and girls in grades five and six is a valuable part of a sound educational program. It is through activities of this nature that children learn to live together, learn together, work and plan together in an entirely different situation than that afforded in a regular urban classroom.

The justification of an outdoor school program rests on certain basic tenets of present day education. These are:

1. General education is aimed at a common core of learning necessary for each individual in a democratic society.

2. The modern school is concerned with the growth and development of the whole child in all areas of his learning.

3. The modern curriculum is or should be developmental, based on real experiences that meet the needs of children and change their behavior patterns toward good citizenship and full individual life.

Considering these objectives carefully, it is logical to assume that the function of the classroom is changing and that educational experience must extend outward from the classroom as needs and experiences indicate into areas where appropriate learnings can take place more naturally, more efficiently, and more effectively.

The outdoors should, then, serve basically as a laboratory of the classroom group to meet some of the aims that are difficult to meet within the confines of a regular classroom.

Background and Rationale

The purpose of this project was to establish a year round out-of-doors laboratory school for elementary children at Camp Round Meadow, Catoctin Mountain National Park, Thurmont, Maryland.

The program was to enhance and supplement the school system's on-site environmental education program under the direction of the Science Department.

The project was coordinated by Marguerite C. Selden, Assistant Superintendent, Department of Summer Schools, Continuing Education and Urban Service Corps.

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Program Objectives

The following objectives were proposed by the Department of Summer Schools, Continuing Education and Urban Service Corps in conjunction with the Science Department:

A. General Objectives

1. To use the out-of-doors as a laboratory to enrich and enhance the educational experiences of pupils through the use of resources available only in a natural setting.

2. To extend the awareness of urban youth beyond the city environment into the natural environment.

3. To acquaint students with the natural, beauty and historical resources of the Catoctin Park area.

4. To help pupils gain insight into man's relationship to his natural and man-made environment.

5. To help pupils acquire deeper understanding of environmental problem solving so as to be motivated to participate in environmental problem solving.

B. Specific Objectives

1. To utilize the environment as a resource in training in reading and related communication skills.

2. To utilize in on-site experiences the content of math, science, and social studies to extend and clarify classroom experiences.

3. To provide opportunities for growth in socialization through resident experiences.

4. To provide recreational experiences available only in an outdoor camp setting.

5. To have first hand experiences with streams, plants, animals, land forms, rocks, etc., in their natural setting.

6. To find evidences of the affect of man upon his environment (use, misuse, reclamation).

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7. To find evidences of the ways natural forces have effected the environment.

8. To utilize reading and other communication skills, mathematics, science, and social studies to make on-site experiences more meaningful and to motivate interest in developing skills in these areas.

9. To describe the natural and urban environments and to show similarities and differences in them.

10. To work in a systematic way, to gain information from the environment.

11. To demonstrate responsible participation as a member of a community (with the attending responsibilities, rights, and privileges) while sharing experiences of living, working, playing, and learning together.

Purpose of Study

The main purpose of this report is to assess the effectiveness of the Out-of-Doors Program. This study also attempts to determine the importance of a project of this nature on urban students.

Delimitations

This report is limited to the responses of directors, staff, visiting teachers, parents and students who were available at the time the survey was conducted.

The method for collecting information was based on questionnaires developed by the Departments of Research and Evaluation. The data reported is the expression of opinions of respondents.

Funding Allotment

1. D. C. Public Schools -	$ 79,977.48
2. Department of Interior -	30,955.50
Grand Total	$110,932.98

Review of Literature

Previous studies on Out-of-Door Laboratories have focused on the need for programs of this nature in urban areas. One study 1/ made the following

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1/ Julian W. Smith, Outdoor Education (An overview), New Mexico State University, December, 1969.

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observations:

1. An outdoor school enriches classroom work in areas of science and nature.

2. Conservation of natural resources is a critical national problem. Units in conservation and acquaintanceship with our resources can help the school in meeting with this problem.

3. Children can have some of man's basic experiences and gain through real contacts a greater understanding of, and appreciation for, nature.

Another study 2/ made by the Battle Creek Public Schools, Battle Creek Michigan gave insight into the role of the classroom teacher in outdoor school.

> The classroom teacher plays a major role in affecting the success of the week of residency at the Outdoor camp. She carries the primary responsibility for the educational growth and development of the children before they go to camp and after they return from camp.

It was suggested that the classroom teacher cannot relinguish this responsibility to the outdoor school teacher assigned to her group; therefore, she must logically combine forces with the outdoor teacher so that both become functional members of a leadership team, each giving of their own special talents to provide the best possible experiences for the boys and girls.

It was further recommended that the classroom teacher become involved in the outdoor education program as follows:

1. The classroom teacher should help the children develop some specific purpose and concerns about what they will do and learn in an outdoor setting prior to their week at Camp.

2. The classroom teacher should provide on-the-spot guidance for the outdoor or residence teacher's day by day organization of activities at camp so the major outdoor education objectives, as pre-planned by the teacher can be met.

3. The classroom teacher should retain a leadership role in maintaining the behavioral expectations demanded of students in the regular classroom.

2/ Jack N. Wykoff, A Camping We Will Go, Battle Creek Public Schools; Battle Creek, Michigan, 1967.

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Definition of Terms

The following words or phrases have been defined to help insure clarity in the presentation of this report.

1. Tenet - A principle, belief, or doctrine generally held to be true.

2. Resident Teacher - The teacher who reside at the camp for the purpose of giving instructions to students.

3. Visiting Teacher - The classroom teacher from the regular class who accompanies his or her class to camp.

4. Project Director - The person who is responsible for the administration and success of the total project.

5. Camp Director - The person who is responsible for camp activities, living quarters, and the welfare of the staff and students while at the camp.

6. Curriculum Director - The person in charge of the courses offered by the camp.

7. Park Naturalist - One who is familiar with the out-of-doors. He is usually a field biologist.

8. Ecology - The branch of science concerned with the inter-relationship of organisms and their environments.

9. Geology - The science that deals with the history of the earth and its life, especially as recorded in rocks.

10. Significant - Having meaning; probably caused by something other than mere chance.

11. Pre - Before

12. Post - After

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PROCEDURE

Sample

The population was composed of 44 fifth grade classes distributed proportionately among the various units of the school system and regions of the city. Four classes, of about 100 students visited the camp each week.

The evaluation team decided to gather pre-post data from the students attending the camp program during the first, fifth, and eighth weeks. Of the 44 schools participating in the program, the following schools were represented during the designated weeks:

Week 1:	Week 5:	Week 8:
Hyde	Drew	Houston
Seaton	Grimke	Turner
Clark	Lewis	Madison
McGogney	Langdon	Shepherd

Data Collection and Instruments

The data was collected from students, teachers and staff who participated in the program. Parents were interviewed by the evaluators at the Camp-site on Parents Day which was held near the end of the program.

The following instruments were designed by the Departments of Research and Evaluation to provide adequate data upon which judgements could be made to assure a valid and unbiased evaluation:

A. Student Opinion Inventory
B. Student Knowledge Inventory
C. Staff Evaluation
D. Staff Questionnaire
E. Teacher Evaluation

(See appendices for Instruments)

The Pre-Student Opinion Inventory and Pre-Student Knowledge Inventory were administered to the fifth grade students in their classrooms during the week before they went to camp. The same tests were administered again on their last day at camp whenever it was possible.

Teacher evaluation forms were sent to all visiting teachers one week after their return to their regular classrooms. Information was furnished concerning the post camp classroom activities.

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The staff was given a staff evaluation questionnaire at the end of their pre-camp workshop to find out the degree to which they thought the knowledge, skills and experiences they had gained would help in successfully implementing the program. The staff also completed a questionnaire at the end of the program. This questionnaire was designed to get their assessment of the overall program including the program's effect on the students.

The parents were not given a questionnaire, but were interviewed at the camp on Parents Day.

Data Analysis

The staff of the Division of Planning, Research and Evaluation tallied the pre and post student questionnaire responses and recorded the total scores of each questionnaire. A t-test was used on the matched scores to determine whether the opinions and knowledge of the students were statistically significantly different, in terms of a gain or a loss, following the camping experience.

The staff and visiting teachers' questionnaires were analyzed by the evaluators for frequency of responses. From this data the evaluators attempted to determine the effectiveness of the program in relation to the stated objectives of the program. A summary of the parents comments was developed to give the evaluators an idea as to how the parents felt about the program.

RESULTS AND DISCUSSION

Student Opinion Inventory

The basic unit of this analysis is the class. In seven of the eleven classes tested, students made positive gains in their attitudes towards camp life and the educational opportunities offered by outdoor schools. Only two classes, however, registered statistically significant gains.

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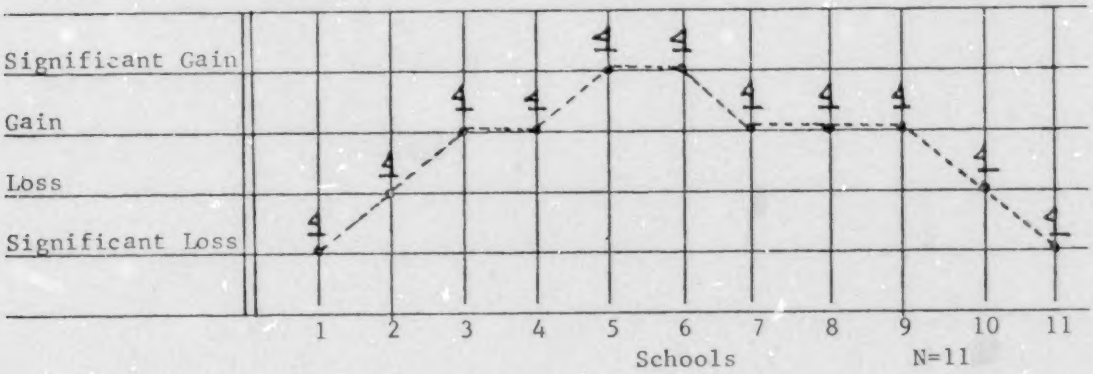
Figure I

Results of Students' Pre and Post Opinion Inventory Questionnaire



Of the classes making significant gains on the attitude questionnaire, one is from a school located in far northwest and the other was located in the inner city.

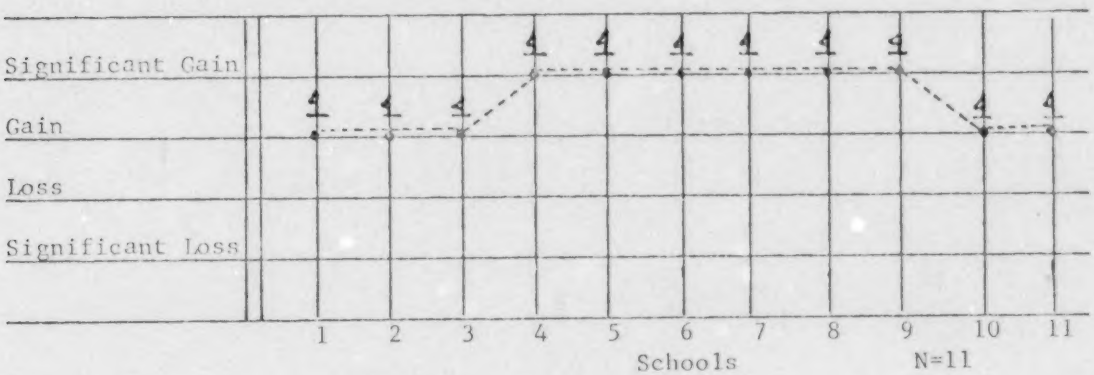
Students in two schools in northeast, two in northwest and one in southeast indicated gains, but these gains were not statistically significant. Data also revealed that students in four schools, three in northwest and one in southeast, recorded a loss.

Student Knowledge Inventory

The results from the Knowledge Inventory as can be seen in Figure II, revealed that all of the groups made gains, but, only in six groups were the gains statistically significant.

Figure II

Results of Students Pre and Post Knowledge Inventory Questionnaire



Of the groups making a significant gain on the Knowledge Inventory questionnaire, one came from a school located in upper northwest, two from schools located in the model school area of northwest, from schools in the northeast, and one from a school in the southeast area.

Of the five groups recording gains (but not significant gains) four were from schools located in the northwest area and one from a school located in the far southeast area.

In the analysis of the data from the students' pre and post knowledge inventory, it was found that taking all the students in our sample as a group, an overall gain in knowledge was made. A t-test was applied to test the significance of this gain in knowledge. To be significant at the 5% level of confidence, a t-score of 1.97 was needed.

The obtained t-score of 7.14 indicates that a significant gain in knowledge was made. We conclude that the students' gain in knowledge was a result of their camp experience and was not due to chance.

Staff Questionnaires

To give this study further clarification, the research team has reviewed each questionnaire and discussed it in detail. The following are the results of this detailed description:

1. Pre-Camp Staff Workshop

A workshop was held for the staff to orientate them to the program. This workshop was held at the campsite. The specific purpose of the workshop was to help the staff gain knowledge, skills and experiences relating to the program which they were about to conduct.

During this week, the staff became familiar with the camp area, camp trails, background and history of the park and general procedures of the operations of the program. They made a special effort to get to know each other and learn each other's job. An evaluation questionnaire was given to the staff at the end of the workshop to determine to what degree the workshop would help them in fulfilling the program objectives.

The mean responses for all respondents are shown in Table 1. To interpret the item mean responses use the following scale.

	Scale			
Rating	Not At All	To Some Degree	To A Great Degree	Totally
Mean Range	0-.4	.5-1.4	1.5-2.4	2.5-3.0

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Table I

Environmental Outdoor Laboratory School
Staff Evaluation Results,
Pre-Camp Workshop
N=12

Statements	Item Mean	Number Responding: Not At All	To Some Degree	To A Great Degree	Totally
1. To use the out-of-doors as a laboratory to enrich and enhance the educational experiences of pupils through the use of resources available only in a natural setting.	1.8	0	3	16	1
2. To extend the awareness of urban youth beyond the city environment into the natural environment.	1.8	0	3	18	0
3. To acquaint students with the natural beauty and historical resources of the Catoctin Park area.	1.7	0	4	16	0
4. To help pupils gain insight into man's relationship to his natural and man-made environment.	1.7	0	4	16	0
5. To help pupils acquire deeper understanding of environmental problems so as to be motivated to participate in environmental problem solving.	1.3	0	9	6	0
6. To provide specialized training in reading and related communication skills.	1.2	0	10	4	0
7. To utilize in on-site experiences the content of math, science, and social studies to extend and clarify classroom experiences.	1.3	0	9	6	0
8. To provide opportunities for growth in socialization through resident experiences.	1.7	0	4	16	0
9. To provide recreational experiences available only in an outdoor camp setting.	1.8	0	3	18	0
Aggregate Mean	1.6				

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The aggregate mean of 1.6 indicates that the staff felt that they had acquired the knowledges, skills and experiences necessary to enable them to help accomplish the above program objectives to a great degree.

2. Final Staff Evaluation

The resident camp staff were asked in a final evaluation questionnaire to rate various aspects of the out-of-doors laboratory program as being: outstanding, quite adequate, good, fair, or inadequate. The responses were assigned values from 4 to 0, respectively, an item mean was computed for each of the program. These results are displayed in Table II on the next page. Use the following scale to interpret the means.

Scale

Rating	Inadequate	Fair	Good	Quite Adequate	Outstanding
Value	0	1	2	3	4
Mean Range	0-.4	.5-1.4	1.5-2.4	2.5-3.4	3.5-4

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Table 11

Staff Assessment of Aspects of the Overall Program
N=15

Aspects	Item Mean	Number Responding				
		Out-standing	Adequate	Good	Fair	In-Adequate
1. Living facilities for students	3.0	2	11	2		
2. Living facilities for staff	2.3		7	5	3	
3. Number of staff members	1.9	1	4	5	3	2
4. Program schedule as a whole	2.7	2	8	3	2	
5. Fieldtrip schedule	2.5	2	7	3	3	
6. Classroom schedule	2.5	1	7	6	1	
7. Recreation schedule	2.3	1	6	6	1	1
8. Instructional staff knowledge of subject matter	3.1	6	6	2	1	
9. Instructional staff skills in presenting subject matter	2.9	4	7	3	1	
10. Contribution of park service personnel	1.8	1	2	6	5	1
11. Division of staff responsibilities	2.2	1	4	7	3	
12. Cooperation among staff members	2.3	4		8	3	
13. Educational supplies available	1.6	2	2	2	6	3
14. Educational equipment available	1.8	2	2	3	7	1
15. Recreational equipment	2.0		5	5	5	
16. Performance of visiting teachers	1.4		1	6	6	2
17. Transportation system	.7			1	9	5
18. Food services	3.9	14				
Aggregate mean	2.3					

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The aggregated mean of 2.3 as is indicated in Table II reveals that the staff rated the overall program as being "good." The strengths and weaknesses of the different aspects of the program as reflected in the item mean column will help future planners of a program of this nature.

Table II reveals that the resident camp staff thought the following:

1. The living facilities for students were considered "quite adequate", while those for the staff were considered "good".

2. The staff thought the number of staff members was "good".

3. The fieldtrip, classroom and the program schedule as a whole were considered "quite adequate".

4. The staff as a whole thought the instructional staffs' knowledge of the subject matter and their skill in presenting it was "quite adequate".

5. The contribution of the park service personnel was rated "good".

6. The division of staff responsibilities and the cooperation among the staff members were both rated "good".

7. The availability of educational supplies and equipment was judged "good" with room for improvement in this area.

8. The performance of the visiting teachers was rated only "fair" by the resident staff. It should be noted that some of the visiting teachers were not aware of their total responsibilities before going to the camp.

9. The transportation system also received a rating of "fair". Some of the problems in this area could certainly be reduced if the busses used for the program were in better repair, and if permanent drivers were assigned.

10. The aspect of the program which received the highest rating and the only aspect to be judged "outstanding" was the food services. Of this there could be no doubt.

The staff also indicated the camp experiences were very beneficial to students in general as well as to visiting teachers.

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The staff was asked to list additional instructional supplies and equipment that would be helpful in the camp's educational program. The staff made the following suggestions:

Items

1. Adequate supply of pencils and markers
2. Writing paper
3. Duplicating machine
4. Record players
5. 8MM movie projectors and films
6. Opaque projectors
7. Books dealing with arts and crafts in library
8. More aquariums and terrariums
9. Microscopes
10. Tape recorders
11. Photographic equipment for lab
12. Rock hammers
13. Maps of the area
14. Compasses
15. Modern dance records
16. Poster board
17. Guide books on plants, animals and rocks
18. Materials for costumes (burlap, cotton)

Additional equipment was suggested by the staff for the recreational program. The following items were the ones most frequently mentioned:

1. Gymnastic mats
2. Poles for volley ball nets
3. Ping pong tables
4. Boxing gloves
5. Books on outdoor games
6. Inner tubes
7. Tennis nets
8. Badminton sets
9. Croquet
10. Chin bars and climbing ropes
11. Swings
12. Potato
13. A piano and music instruments
14. In door games for more than two players
15. Bean bags
16. T.V. for teachers

The preceding items were mentioned two or more times by the members of the staff.

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When asked to list no more than three (3) specific strengths of the program, beginning with what they considered the greatest strength, the staff believed that the communication and cooperation among staff members was most outstanding strength. The general organization of the program ranked second and the understanding of social discipline, consideration for others and personal responsibility ranked third.

The staff also responded to specific problems of the program.

The following is a list of problems cited most frequently by the staff:

1. Staff teachers should have more privacy
2. More time to plan for the week
3. More time to do personal things
4. Lack of communication between park service personnel and the educational staff
5. Pre-orientation of visiting teachers and students
6. Class periods should be shorter
7. Use of counselors as part of instructional program; use them in classrooms to teach
8. Transportation
9. Building maintenance
10. Short weekends
11. Lack of preparation and orientation for staff in procedures of discipline, child psychology and camp living
12. Lack of real interest on part of new public school participants
13. Shortage of help
14. Constant pressure placed on staff in regard to observers - the demand to be more than what we are, when, in fact we were doing our best and being effective in our performance.
15. Communication between the staff and the directors
16. Inadequate medical attention
17. Roles on job descriptions of resident teachers, counselors and visiting teachers were vague
18. Lack of effort by many who refused to put forth their best.

Visiting Teacher's Questionnaire

Twenty-five visiting teachers responded to the teacher evaluation questionnaire sent to them one week after the camping experience. They tended to have a positive attitude towards the knowledges and experiences their students had gained.

The visiting teachers' assessment of their students' post camp behavior is shown in Table III.

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The aggregate mean of 2.5 indicates that the teachers felt the program had a great impact on their students. Rated highest by the teachers was the students' expressed desires to return to the campsite at a future time. Rated a close second were the students' retention of factual information presented at the campsite, and their demonstrated enthusiasm for the camp experience in their classroom discussions and written compositions. They also stated that students were expressing an interest in subjects similar to those presented at the campsite and that students were now more aware of their natural surroundings.

Table III

Teachers Evaluation of Their Students Post Camp Behavior
N=25

Statements	Item Mean	Number Responding				Rating
		A Great Deal	Some	Little	None	
a. They have retained factual information presented at the campsite.	2.7	18	7			A Great Deal
b. They have applied the skills developed at the campsite to new situations.	2.2	12	8	3	2	Some
c. They have demonstrated an interest in subjects similar to those presented at the campsite.	2.6	15	10			A Great Deal
d. They have associated information presented at the campsite to related information presented in the classroom.	2.5	13	12			A Great Deal
e. They have demonstrated enthusiasm for the camp experience in their classroom discussions and written compositions.	2.7	18	7			A Great Deal
f. They have expressed a desire to return to the campsite at a future time.	2.9	24	1			A Great Deal

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Table III (Cont'd)

Statements	Item Mean	Number Responding: A Great Deal	Some	Little	None	Rating
g. They have demonstrated increased curiosity about their environment.	2.4	11	14			Some
h. They explore a greater variety of approaches to problem solution since the camping experience.	1.9	7	10	6	2	Some
i. Their peer relationships have become more positive.	2.5	14	9	2		A Great Deal
j. There has been positive feedback from the parents concerning the camping experience.	2.1	11	9	2	3	Some
Aggregate Mean	2.5					

Some of the post camp activities carried on in the classrooms included written reports and descriptions, group discussion, paintings and drawing, assembly programs, individual and group projects, and sharing of experiences with other students in the school.

The visiting teachers were also asked to comment on how important the total program was to them and their students. Their comments revealed that they were very pleased with the program and that it was very beneficial to them as well as to their students. Even though the program was beneficial, the teachers listed several problems about the camp experience. They felt that the class periods were too long and that more arts and crafts are needed. The lack of time for follow-up of field trips and classroom activities were also cited concerns. They also thought there should be more relaxation time after hikes.

The following is a list of suggestions for improving the program given by the visiting teachers:

1. Provide more instructional equipment
2. Provide more free time for students and visiting teachers
3. Include some pre-site preparation for visiting teachers
4. Include more organized camp games
5. Include more arts and crafts
6. Provide detailed job descriptions for camp staff and visiting teachers

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7. Have joint planning between camp staff and visiting teachers
8. Post schedules of camp activities
9. Extend camp sessions to two weeks
10. Provide better all around instructional planning including more follow-up activities, more mathematics, etc.

The teachers felt that these needs could be fulfilled if more time is allowed for the people who will be preparing this program in the future.

The instructional staff and the overall program was rated good by the teachers. The following table shows by number of responses the ratings given.

Table IV

Visiting Teachers' Rating of the Camp Instructional Staff and the Overall Program
N=25

Rating	Excellent			Good			Fair			Poor			No Response	Mean
Value	12	11	10	9	8	7	6	5	4	3	2	1		
Overall Program	6	5	7	3	1	0	0	0	0	0	0	0	3	9.2
Instructional Staff	6	4	4	4	0	2	1	1	0	0	0	0	3	8.6

Parent's Day

The parents were very happy about the experiences their children were getting at camp. They liked the facilities and were very impressed with the workshops and demonstrations that were presented. The parents were also taken on a tour of the classrooms where the students worked.

Most of the parents were very much in accord with the idea of a year round program and would like to see the program expanded so that it will affect students in other grades. Some parents expressed a desire to work with such a program.

They were very pleased with the friendliness of the staff and the staff's efforts to explain the program. The parents also expressed a desire to know even more about the program and to see more community involvement.

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SUMMARY AND CONCLUSIONS

The findings of this study indicate positive results both on students attitudes and on the knowledge inventory. Matched data on 234 of the participating students showed an overall gain in knowledge in the areas of mathematics, science and vocabulary. The gain was significant to the 1% level. The data, both factual and empirical indicated that students attitudes about participation in programs of this nature were positively modified.

Camp staff members, including administrators, instructors and counselors rated the total program "excellent" or "good". One week following the children's return from the camp, the classroom teachers reported that the students had retained factual information from the camping experience, demonstrated an interest in similar subjects, associated campsite information to their classroom experiences, showed enthusiasm for the camp experience in their writing, expressed a desire to return to the campsite and increased their curiosity about their environment.

Generally, staff and visiting teachers believed that the total program did indeed contribute to the social growth of students as they experienced responsibilities and social interchange of a group living together as a unit. The program also provided recreational experiences available only in an outdoor camp setting.

A comment from one of the parents could be used more than adequately to sum up the feelings of the parents about the program. She stated that the camp was a wonderful experience that her son would not have had if the school had not offered it. She stated that she had several children, and it would have been impossible to give her child such an opportunity.

In summary, the oral and written responses by the people involved in the program indicated that the program achieved many of its objectives. It should however be noted that a program of this nature can be improved to attain greater success and possibly meet the needs of a larger population.

RECOMMENDATIONS

The first of the general recommendations deals with the planning of future out-of-doors laboratory programs.

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It is clearly understood that funding is often a difficult problem and sometimes is approved at the very last moment, however, every possible effort should be made to give the program planners enough time to work out important objectives.

A pre-orientation workshop should be setup for visiting teachers to inform them of the objectives of the total program. They should be fully aware of the general operations of the program. They should also be aware of the subject matter and expectations of students and teachers visiting the camp. General subject matter pertaining to the camp curriculum, should be given to the visiting teachers as soon as possible so they could include these materials in their regular curriculum.

The community should be aware of such a program and suggestions from the community to help improve the program should be considered.

The program should be open to fourth grade students as well as fifth grade students. This would give the teachers a two year follow-up instead of a one year follow-up.

It is also suggested that more educational equipment and supplies be made available for the staffs' use at camp. A careful study should be made to determine the amount of equipment and supplies needed to insure a successful program.

It is also recommended that an orientation program for parents and prospective campers be setup to give the community a better insight of the program.

It is recommended that more careful and more detailed planning of the camp program be done to insure that the most effective use be made of the week's experience. Some suggestions based on the questionnaire results are: field trips need to have better classroom follow-up; classes should be shorter; more arts and crafts should be available; free time activities other than sports need to be offered; and more rest time following field trips should be scheduled.

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APPENDIX A

Environmental Outdoor Laboratory School
Student Opinion Inventory

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Name_____ Date_____

Directions: We would like to know how you feel about the camp experience. Please answer the following questions using the checklist on the right side of the page. For each question you have three choices: "Yes,""Sometimes," "No." Place a check in the box of your choice for each item.

	Yes	Sometimes	No
1. Do you enjoy learning about the things around you?			
2. Is it fun to identify animals by their tracks?			
3. Do you think science is interesting?			
4. Is it more exciting to learn at camp than at school?			
5. Do you think watching animals in parks is fun?			
6. Do you feel unhappy being at the camp?			
7. Do you enjoy solving science problems?			
8. Is living with your classmates fun?			
9. Do you feel learning about animals is a waste of time?			
10. Are you excited to tell your friends at home about this trip?			
11. Is collecting rock and soil samples dull?			
12. Is it fun being taught by different teachers?			

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	Yes	Sometimes	No
13. Do you enjoy being in the city more than in the woods?			
14. Do you enjoy identifying trees in the woods by their size and shape?			
15. Do you think it is hard to get along with others in the camp?			
16. Do you like learning about living things?			
17. Do you find science experiments a waste of time?			
18. Is it interesting to learn how people made a living long ago?			
19. Do you think it is fun to watch changes in plant life?			
20. Do you think a field trip is an exciting way to learn new things?			

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Departments of Research and Evaluation
March 1971

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APPENDIX B

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Environmental Outdoor Laboratory School
Student Knowledge Inventory

Name _____ Date _____

Circle the best possible answer.

example: An apple is a

a. animal
b. fruit
c. toy
d. don't know

****

1. Rulers can be made with

a. a leaf
b. a piece of string
c. a large rock
d. don't know

2. Thermometers are used to measure

a. temperatures
b. yards
c. time
d. don't know

3. Compasses are used to show

a. pounds
b. direction
c. height
d. don't know

4. Stopwatches are used to measure

a. ounces
b. yards
c. time in seconds
d. don't know

5. We can measure rainfall by using

a. a tin can and a ruler
b. a piece of string and a thermometer
c. a tin can and a compass
d. don't know

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6. Environment means

   a. mountains and streams
   b. living things
   c. all things around us
   d. don't know

7. Mountains, streams and living things are part of

   a. our city life
   b. our environment
   c. our earth's crust
   d. don't know

8. Things around us can be changed by

   a. wind and water
   b. rock and soil samples
   c. mountains and valleys
   d. don't know

9. What might you make from these items: large jars, dirt, rocks, moss, ferns, insects and fungi?

   a. cast of an animal footprint
   b. terrarium
   c. rock samples
   d. don't know

10. A natural resource used for power is

    a. land
    b. water
    c. soil
    d. don't know

11. From the choices below, which would be <u>most</u> needed by living things?

    a. rocks
    b. man
    c. other living things
    d. don't know

12. Erosion means

    a. the running of water
    b. the wearing away of the soil
    c. the blowing of the wind
    d. don't know

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13. There is a large open field where running water is washing away the soil. How could the soil best be protected?

    a. build a fence around the field
    b. build houses in the field
    c. plant trees and grass in the field
    d. don't know

14. One of the greatest enemies of the forest is

    a. fire
    b. a rainstorm
    c. a squirrel
    d. don't know

15. What might you make with the following list of items: cardboard, plaster of Paris and water?

    a. rock samples
    b. terrarium
    c. cast of an animal footprint
    d. don't know

16. How might you prove that a tree is growing?

    a. enrich the soil
    b. keep measurements
    c. water it regularly
    d. don't know

17. Which of the following are plants <u>least</u> likely to do?

    a. help produce more soil
    b. provide shelter and shade
    c. remove oxygen from the air
    d. don't know

18. Which is <u>not</u> a natural resource?

    a. water
    b. rock sample
    c. library
    d. don't know

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19. Which is a natural resource?

    a. a building
    b. soil
    c. a road
    d. don't know

20. A fire tower is used to

    a. prevent fires
    b. spot fires
    c. put out fires
    d. don't know

21. The kind of animal living in a particular area may most likely be due to

    a. man-made resources
    b. the surroundings
    c. rocks and soil
    d. don't know

22. The surface of the earth is often changed. Which of the following was not a man-made change?

    a. roads and highways
    b. cities
    c. valleys
    d. don't know

23. From the list below which is more likely to be the best friend of the forest?

    a. a park ranger
    b. a wild animal
    c. a windstorm
    d. don't know

24. There is a river flowing through the valley. Every year the river overflows its banks and floods the valley, crops and homes. How could this be stopped?

    a. build a dam to control the water
    b. build the homes high above the ground
    c. harvest the crops before the flood
    d. don't know

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25. There is a large forest. It has just been discovered that worms and insects are destroying the trees by eating the leaves and branches. Which of the following might be the best way to save the forest?

a. cut off all the leaves and branches
b. bring in birds to eat the worms and insects
c. burn the worms and insects
d. don't know

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Departments of Research and Evaluation
March 1971

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APPENDIX C

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Environmental Outdoor Laboratory School
Staff Evaluation

To the degree indicated, I feel that I have gained the knowledges, skills and experiences to enable me to help accomplish the following program objectives:

	Not At All	To Some Degree	To A Great Degree	Totally
1. To use the out-of-doors as a laboratory to enrich and enhance the educational experiences of pupils through the use of resources available only in a natural setting.				
2. To extend the awareness of urban youth beyond the city environment into the natural environment.				
3. To acquaint students with the natural, beauty and historical resources of the Catoctin Park area.				
4. To help pupils gain insight into man's relationship to his natural and man-made environment.				
5. To help pupils acquire deeper understanding of environmental problems so as to be motivated to participate in environmental problem solving.				
6. To provide specialized training in reading and related communication skills.				
7. To utilize in on-site experiences the content of math, science, and social studies to extend and clarify classroom experiences.				
8. To provide opportunities for growth in socialization through resident experiences.				
9. To provide recreational experiences available only in an outdoor camp setting.				

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March 1971

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APPENDIX D

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Departments of Research and Evaluation
Division of Planning, Research and Evaluation
Environmental Outdoor Laboratory School
Staff Questionnaire

Position at the Camp_____ Date_____

As a permanent teacher, counselor or other staff member at the Environmental Out-Of-Doors Laboratory at Catoctin National Park, your reactions are an important part of the assessment of the overall program. Will you please assist us by completing the following? Thank you.

A. Rate the following aspects of the Environmental Out-Of-Doors Laboratory by checking the appropriate box.

	Outstanding	Quite Adequate	Good	Fair	Inadequate
1. Living facilities for students					
2. Living facilities for staff					
3. Number of Staff members					
4. Program schedule as a whole					
5. Fieldtrip schedule					
6. Classroom schedule					
7. Recreation schedule					
8. Instructional staff knowledge of subject matter					
9. Instructional staff skills in presenting subject matter					
10. Contribution of park service personnel					
11. Division of staff responsibilities					
12. Cooperation among staff members					
13. Educational supplies available					
14. Educational equipment available					
15. Recreational equipment					
16. Performance of visiting teachers					
17. Transportation system					
18. Food services					

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B. Do you consider the camp experience beneficial to:

	Very Much	Some	Little	Not At All
1. The students in general?				
2. The visiting teacher?				

Comments:

C. 1. List additional instructional supplies and equipment that you think would be useful in the camp's educational program.

2. List additional equipment that you think would be useful in the camp's recreational program.

D. List no more than three (3) specific strengths of the program, beginning with what you consider the greatest strength (from your point of view as a staff member).

E. List no more than three (3) specific problems of the program beginning with what you consider the greatest problem (from your point of view as a staff member).

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F. Rate the overall program by placing an "X" at the appropriate point on the scale below.

Excellent			Good			Fair			Poor		
12	11	10	9	8	7	6	5	4	3	2	1

G. Additional comments.

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APPENDIX E

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Departments of Research and Evaluation
Environmental Outdoor Laboratory School
Teacher Evaluation

Name_____ School_____

Teachers:

As a participant in the Educational Out-Of-Doors Laboratory at Catoctin National Park, your reactions are an important part of the assessment of the over all program. Will you please assist us by completing the following? Thank you.

1. Use the checklist below to indicate the degree to which these statements apply to the majority of your students following their camping experience.

	A Great Deal	Some	Little	None	Not Applicable
a. They have retained factual information presented at the campsite.					
b. They have applied the skills developed at the campsite to new situations.					
c. They have demonstrated an interest in subjects similar to those presented at the campsite.					
d. They have associated information presented at the campsite to related information presented in the classroom.					
e. They have demonstrated enthusiasm for the camp experience in their classroom discussions and written compositions.					
f. They have expressed a desire to return to the campsite at a future time.					
g. They have demonstrated increased curiosity about their environment.					

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	A Great Deal	Some	Little	None	Not Applicable
h. They explore a greater variety of approaches to problem solution since the camping experience.					
i. Their peer relationships have become more positive.					
j. There has been positive feedback from the parents concerning the camping experience.					

2. Were you able to have meaningful post-site activities with your class as a result of their experiences?

Yes_____ No _____

3. If "yes", for number 2, explain the nature of the follow-up. If "no", explain why not.

4. Do you consider the experience beneficial to:

	Very much	Some	Little	Not at all
a. You as a teacher?				
b. The students in general?				

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5. What problems did the camping experience present?

6. How do you think the program can be improved?

7. a. Rate the overall program by placing an "x" at the appropriate point on the scale.

   b. Using the same scale rate the camp instructional staff by placing "o" at the appropriate point on the scale.

Excellent			Good			Fair			Poor		
12	11	10	9	8	7	6	5	4	3	2	1

Please return the completed form to:

Division of Planning, Research and Evaluation
Presidential Building
Attn: Mr. Herman Cobb

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Departments of Research and Evaluation
March 1971

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APPENDIX F

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Participating Schools
Environmental Outdoor Laboratory School

Hyde
Seaton
Clark
McGogney
Payne
Greene
Thomas
Aiton
Hardy
Edmonds
Scott-Montgomery
Maury
Young
Raymond
Goding
Bunker Hill
Drew
Grimke
Lewis
Langdon
Nalle
Lenox

Bundy
Logan
Blow-Pierce
Watkins
Bancroft
Ludlow
Houston
Turner
Madison
Shepherd
Savoy
Davis
Perry
Brent
Mott
Walker-Jones
Emery
Patterson
Birney
J.O. Wilson
Burroughs
Simmons

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APPENDIX G

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Typical Day

7:00	Reveille
7:30	Flag Raising
7:45 - 8:30	BREAKFAST
8:30 - 9:00	Cabin Clean-up
9:00 - 9:30	Pupil - Teacher Planning
*9:30 - 12:00	Group A - Writing report of previous nature hike
	Group B - Weather forecasting
	Group C - Studying pioneer industries in Catoctin region
	Group D - Mapping of camp area
12:00 - 1:00	LUNCH
1:00 - 1:30	Free Time (rest - reading - etc.)
*1:30 - 3:30	Group A - Taking a nature walk
	Group B - Making terrarium
	Group C - Constructing a weather station
	Group D - Participating in arts and crafts
3:30 - 4:00	Interest groups
4:00 - 5:00	Elected games, etc.
5:00 - 6:00	Shower and clean up for evening activities
6:00	DINNER
6:46 - 7:15	Teacher-pupil evaluation of day's activities
7:15 - 8:15	Evening activities - astronomy, skits, singing, etc.
8:30	SNACK
9:00	Taps and lights out

* Groups will rotate

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APPENDIX H

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Personnel Participating In The Survey

Students	234
Teachers	25
Parents (approximately)	175
Project Director	1
Camp Director	1
Director in charge of curriculum	1
Educational Specialist	4
Park Naturalist	1
Camp Nurse	1
Pupil Personnel Worker	1
Counselors	6
Environmental Specialists	2
Total	452

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APPENDIX I

Staff

Resident Teachers

Marvin Crawford
Assistant Director

Vivian Couzzens
Teacher

Val Viola
Teacher

Jessie Porter
Teacher

William Thomas
Teacher

Joe Renard
Teacher

Counselors

Wayne A. Gardner
Jeanie Hofhiemer
Robert Morgan

Christopher Ottinger
Doris D. Shapiro
Joann Sumrall

Jill Thatcher
Nurse

Catherine Brown
Pupil Personnel Worker

Lucille Howerton
Volunteer

Ave Renard
Volunteer

Thelma N. Johnson
Project Director

Cooperating Interior Department Staff

Oliver Gillespie
Camp Director

Park Rangers
- Paul Engstrom
- Mark Forbes
- Paul Fuller

APPENDIX J

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Visiting Teachers
Environmental Outdoor Laboratory School

Mrs. Ethel Horton
Mrs. Barbara William
Miss Catherine McManus
Mr. Lenwood Edwards
Mr. Willie Gafney
Mr. James McNeil
Miss Minnie Williams
Miss Joyce Hamilton
Mr. Willie Lamb
Mr. Alvin Young
Mrs. Rhoda Coles
Mr. William Thomas
Mrs. P. Dukes
Mr. D. Meyers
Miss G. Goffrey
Mrs. C. Cyrus
Mr. Willie Jones
Mr. James Meader
Mrs. Carlene Witherspoon
Mr. Arron Penn
Mrs. Mildred Rudgley
Mrs. Margaret Washington

Mr. Samuel Covington
Miss Carolyn Miller
Mr. Andrew Barnes
Mrs. Marie Johnson
Mrs. Marie Wadford
Mrs. Vera Smith
Mrs. Maxine Carpenter
Mrs. Marion Miller
Mr. Simpson Jefferson
Mrs. Thelma Parker
Mr. Michael Harrison
Mrs. Ester Hardman
Mr. Sylvester Dory
Mr. William Blott, Jr.
Mr. James Gillespie
Mrs. Louise Young
Mrs. Juanita Davis
Mrs. Wilhelmina Washington
Mrs. Melita Myers
Miss Barbara Jackson
Mr. Albert Arrighi
Mr. Charles Amor